

William J. Riley

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EDUCATION

- Ph.D. Environmental Engineering**, University of California, Berkeley, 1996.
- M.S. Environmental Engineering**, University of California, Berkeley, 1993.
- M.S. Physics**, University of North Carolina, Chapel Hill, 1988.
- B.S. Aerospace Engineering**, Rensselaer Polytechnic Institute, 1984.

RESEARCH INTERESTS

Interactions between the soil, biosphere, and atmosphere that impact carbon and nutrient cycling, hydrological flows, leaching, and trace-gas fluxes important in climate change; environmental fluid mechanics and the interactions between fluid flows and biological processes that affect environmental quality; numerical modeling of coupled hydrological, biological, and atmospheric systems; use of carbon and oxygen isotopes in coupled hydrological and biological systems; and impacts of intensive agriculture; development and testing of mechanistic and probabilistic models of human exposures to environmental contaminants.

PROFESSIONAL EXPERIENCE

- Scientist**, Lawrence Berkeley National Laboratory. 2000 through present. My current work focuses on the development and testing of mechanistic models of coupled physical, biological, chemical, and atmospheric processes important in predicting mass (e.g., H₂O, CO₂, NO, and N₂O) and energy balances at the earth's surface.
- Lecturer**, U.C. Berkeley, Civil and Environmental Engineering Department. 1998 – 2006.
- Postdoctoral Fellow** with Pamela Matson, Stanford University and University of California, Berkeley. 1996 through 1999.
- Ph.D. Dissertation Research** with William Nazaroff, University of California, Berkeley and Lawrence Berkeley National Laboratory. 1993 through 1996.
- Physics Graduate Research Assistant**, University of North Carolina at Chapel Hill. 1986 through 1988.

LECTURER POSITIONS

1. **University of California, Berkeley.** Spring, 2006. *Lecturer* for the upper division class *Climate Change Mitigation* (CEE107).
2. **University of California, Berkeley.** Spring, 2003. *Lecturer* for the upper division class *Introduction to Environmental Engineering* (CEE111).
3. **San Francisco State University.** Spring, 2001. *Lecturer* for the graduate level class *Air Quality Engineering* (ENGR 866)
4. **University of California, Berkeley.** Spring, 2000. *Lecturer* for the upper division class *Elementary Fluid Mechanics* (CEE100).
5. **University of California, Berkeley.** Fall, 1999. *Lecturer* for the lower division class *Introduction to Computer Programming for Scientists and Engineers* (E77N).
6. **University of California, Berkeley.** Spring, 1999. *Lecturer* for the upper division class *Elementary Fluid Mechanics* (CEE100).
7. **University of California, Berkeley.** Fall, 1998. *Lecturer* for the upper division class *Elementary Fluid Mechanics* (CEE100).

Peer-Reviewed Publications

1. J.B. Gaudinski, M.S. Torn, W.J. Riley, T.E. Dawson, J.D. Joslin, and H. Majdi (2009) Fine root lifetimes and carbon inputs to soil from tree-root mortality using isotopes, observations, and a multi-pool model, in review *Global Change Biology*.
2. C. Gu and W.J. Riley (2009) Combined effects of short-term rainfall patterns and soil texture on nitrogen cycling in soil, in review *J. Contaminant Hydrology*.
3. F.M. Maggi and W.J. Riley (2009) Transient competitive complexation in biological kinetic isotope fractionation explains non-steady isotopic effects: Theory and application to denitrification in soils, in review *Geochimica et Cosmochimica Acta*.
4. F.M. Maggi and W.J. Riley (2009) Biological kinetic isotope fractionation during denitrification in soils, in press *JGR-Biogeosciences*.
5. W.J. Riley, S.C. Biraud, M.S. Torn, M.L. Fischer, D.P. Billesbach, J.A. Berry (2009) Regional CO₂ and Latent Heat Surface Fluxes in the Southern Great Plains: Measurements, Modeling, and Scaling, in press *JGR-Biogeosciences*.
6. W.J. Riley, J.B. Gaudinski, M.S. Torn, J.D. Joslin, and P.J. Hanson (2009) Quantification of root lifespan using radiocarbon data and a multi-compartment model, in press *New Phytologist*.
7. J.B. Gaudinski, M.S. Torn, W.J. Riley, C. Swanston, S.E. Trumbore, J.D. Joslin, H. Majdi, T.E. Dawson, and P.J. Hanson (2009) Use of stored carbon reserves in growth of temperate tree roots and leaf buds: analyses using radiocarbon measurements and modeling, *Global Change Biology*, doi: 10.1111/j.1365-2486.2008.01736.x. (LBNL-2136E)
8. C.J. Still, W.J. Riley, S.C. Biraud, D.C. Noone, N.H. Buenning, J.T. Randerson, G.D. Farquhar, M.S. Torn, and J.A. Berry (2009) The influence of clouds and diffuse radiation on ecosystem-atmosphere CO₂ and C¹⁸OO exchanges, 114, G01018, doi:10.1029/2007JG000675. *Journal of Geophysical Research - Biogeosciences*. (LBNL-2155E)
9. C. Gu, F. Maggi, W.J. Riley, R.T. Venterea, G.M. Hornberger, T. Xu, N. Spycher, C. Steefel, N.L. Miller, C.M. Oldenburg (2009) Aqueous and gaseous Nitrogen losses

- induced by fertilizer application, *JGR-Biogeosciences*, 114, G01006, doi:10.1029/2008JG000788. (LBNL-1689E)
10. W.J. Riley, D.Y. Hsueh, J.T. Randerson M.L. Fischer, J.G. Hatch, D.E. Pataki, W.Wang, and M.L. Goulden (2008) Where do fossil fuel carbon dioxide emissions from California go? An analysis based on radiocarbon observations and an atmospheric transport model, *J. Geophysical Research – Biogeosciences*, 113, G04002, doi:10.1029/2007JG000625. (LBNL-1289E)
 11. Maggi, F., C. Gu, W. J. Riley, G. M. Hornberger, R. T. Venterea, T. Xu, N. Spycher, C. Steefel, N. L. Miller, and C. M Oldenburg (2008), A mechanistic treatment of the dominant soil nitrogen cycling processes: Model development, testing, and application, *JGR-Biogeosciences*, 113, G02016, doi:10.1029/2007JG000578.
 12. Fried, JS, JK Gilless WJ Riley, TJ Moody, C Simon de Blas, K Hayhoe, M Moritz, S Stephens, MS Torn (2008) Predicting the effect of climate change on wildfire behavior and initial attack success, *Climatic Change*, 87(1), 251-264. (LBNL-741E)
 13. McDowell, N, D Baldocchi, M Barbour, C Bickford, M Cuntz, D Hanson, A Knohl, H Powers, T Rahn, JT Randerson, WJ Riley, CJ Still, K Tu, A Walcroft (2008) Understanding the stable isotope composition of biosphere-atmosphere CO₂ exchange *EOS*, 89(10), 94-95.
 14. Fischer, M.L, Billesbach, D.P., Riley, W.J, Berry, J.A., and M.S. Torn (2007) Spatiotemporal variations in growing season exchanges of CO₂, H₂O, and sensible heat in agricultural fields of the Southern Great Plains, *Earth Interactions*, 11(17), 21 pp.
 15. Henderson-Sellers, A, M Fischer, K McGuffie, WJ Riley, G Schmidt, K Sturm, K Yoshimura (2006) Stable Water Isotope Simulation by Current Land-surface Schemes: Results of iPILPS Phase 1, 51 (1-2 (Special Issue)), 34-58, doi:10.1016/j.gloplacha.2006.01.003, *Global and Planetary Change*. (LBNL-60932)
 16. Christensen, L, WJ Riley, and I Ortiz-Monasterio (2006) Nitrogen cycling in an irrigated wheat system in Sonora, Mexico: Measurements and modeling, DOI 10.1007/s10705-006-9025-y, *Nutrient Cycling in Agroecosystems*. (LBNL-60806)
 17. Joslin, JD, JB Gaudinski, MS Torn, WJ Riley, and PJ Hanson (2006) Unearthing live fine root turnover times in a hardwood forest: The roles of root diameter, soil depth, and root branching order, *New Phytologist*. 172, 523–535, doi: 10.1111/j.1469-8137.2006.01847.x. (LBNL-57347)
 18. Lai, C, WJ Riley, C Owensby, J Ham, A Schauer, and J R Ehleringer (2006) Seasonal and interannual variations of carbon and oxygen isotopes of respired CO₂ in a tallgrass prairie: Measurements and modeling results from 3 years with contrasting water availability, 111, D08S06, doi:10.1029/2005JD006436, *J. Geophys. Res.* (LBNL-60741)
 19. Aranibar, JN, JA Berry, WJ Riley, DR Bowling, JR Ehleringer, DE Pataki, and BE Law (2005) Modeling environmental controls of carbon isotope discrimination, carbon, and energy fluxes at the canopy scale in a semi-arid pine forest, 12, 710–730, doi: 10.1111/j.1365-2486.2006.01121.x, *Global Change Biology*. (LBNL-59838)
 20. Riley, WJ, JT Randerson, PN Foster, and TJ Lueker (2005) The influence of terrestrial ecosystems and topography on coastal CO₂ measurements: A case study at Trinidad Head, California, *JGR-Biogeosciences*, No. G1, G01005, 10.1029/2004JG000007 (LBNL-57349)
 21. MacLeod, MJ, WJ Riley, and TE McKone (2005) Assessing the Influence of Climate Variability on Atmospheric Concentrations of Persistent Organic Pollutants Using a

- Global-Scale Mass Balance Model (BETR-Global), *Environmental Science and Technology*, 39(17):6749-6756, 2005. (LBNL-57704)
22. Riley, WJ (2005) A Modeling Study of the Impact of the $\delta^{18}\text{O}$ Value of Near-Surface Soil Water on the $\delta^{18}\text{O}$ Value of the Soil-Surface CO_2 Flux, 69(8), 1939–1946, *Geochimica et Cosmochimica Acta*. (LBNL-57348)
 23. Cooley, HS, WJ Riley, MS Torn, and Y He, (2005) Effect of harvest on regional climate and soil moisture and temperature, 110, D03113, doi:10.1029/2004JD005160, *JGR – Atmospheres*. (LBNL-56063)
 24. Still, CJ, WJ Riley, BA Helliker, and JA Berry (2005) Simulation of ecosystem oxygen-18 CO_2 isotope fluxes in a tallgrass prairie: Biological and physical controls, In *Stable Isotopes and Biosphere-Atmosphere Interactions* (Eds. Flanagan, LB, Ehleringer, JR & DE Pataki). Elsevier-Academic Press, Physiological Ecology Series.
 25. Riley, WJ, McKone, TE and Hubal-Cohen, E (2004) Estimating Contaminant Dose for Intermittent Dermal Contact: Model Development, Testing, and Application. *Risk Analysis*, 24(1): pp. 73-84, LBNL-54207.
 26. Riley, WJ, CJ Still, BR Helliker, M Ribas-Carbo, and JA Berry (2003) Measured and modeled ^{18}O in CO_2 and H_2O above a tallgrass prairie, 9, 1567-1581, *Global Change Biology*. (LBNL-53019).
 27. Maddalena, RL, TE McKone, and WJ Riley (2003) Is there a “forest filter effect” for organic pollutants?, *Stochastic Environmental Research and Risk Assessment*, 17, 231-234. (LBNL-51882)
 28. Marshall, JD, WJ Riley, TE McKone, and WW Nazaroff (2003) Intake fraction of primary pollutants: Motor vehicle emissions in the South Coast Air Basin, *Atmospheric Environment*, 37, 3455-3468. (LBNL-51854)
 29. Marshall JD, Riley WJ, McKone TE, and WW Nazaroff (2002) Population, proximity, and persistence: Incorporating exposure into life-cycle assessment, *Epidemiology*, 13: 205.
 30. Riley, WJ, CJ Still, MS Torn, and JA Berry (2002) A mechanistic model of H_2^{18}O and C^{18}OO fluxes between ecosystems and the atmosphere: Model description and sensitivity analyses, *Global Biogeochemical Cycles*, 16, 1095-1109. (LBNL-51234)
 31. Asner, GP, AR Townsend, WJ Riley, JC Neff, PA Matson, and CC Cleveland (2001) Physical and biogeochemical controls over terrestrial ecosystem responses to nitrogen deposition, *Biogeochemistry*, 54, 1-39.
 32. Riley, WJ, TE McKone, ACK Lai, and WW Nazaroff (2001) Indoor particulate matter of outdoor origin: The importance of size-dependent removal mechanisms, *Environmental Science and Technology*, 36, 200-207.
 33. Riley, WJ, I Ortiz-Monasterio, and PA Matson (2001) Nitrogen leaching and soil nitrate, nitrite, and ammonium levels under differing fertilizer management in an irrigated wheat system in northern Mexico, *Nutrient Cycling in Agroecosystems*, 61: 223-236. (LBNL-48495)
 34. Van Loy, MD, WJ Riley, JM Daisey, and WW Nazaroff (2001) Dynamic behavior of semivolatile organic compounds in indoor air. 2. Nicotine and phenanthrene with carpet and wallboard, *Environmental Science and Technology*, 35, 560-567.
 35. Riley, WJ and PA Matson (2000) NLOSS: a mechanistic model of denitrified N_2O and N_2 evolution from soil, *Soil Science*, 165, 237-249. (LBNL-48499)

36. Lund, CP, WJ Riley, LL Pierce, and CB Field (1999) The effects of chamber pressurization on soil-surface CO₂ flux and the implications for NCE measurements under elevated CO₂, *Global Change Biology*, 5, 269-281.
37. Riley, WJ, AR Robinson, AJ Gadgil, and WW Nazaroff (1999) The effects of variable wind speed and direction on radon transport from soil into buildings: model development and exploratory results, *Atmospheric Environment*, 33, 2157-2168.
38. Robinson, AL, RG Sextro, and WJ Riley (1997) Soil-gas entry into houses driven by atmospheric pressure fluctuations - The influence of soil properties, *Atmospheric Environment*, 31, 1487-1495.
39. Riley, WJ, AJ Gadgil, and WW Nazaroff (1996) Wind-induced ground-surface pressures around a single-family house, *Journal of Wind Engineering and Industrial Aerodynamics*, 61, 153-167.
40. Riley, WJ, WJ Fisk, and AJ Gadgil (1996) Regional and national estimates of the potential energy use, cost, and CO₂ emissions associated with radon mitigation by sub-slab depressurization, *Energy and Buildings*, 24, 203-212.
41. Riley, WJ, AJ Gadgil, YC Bonnefous, and WW Nazaroff (1996) The effect of steady wind on radon-222 entry from soil into houses, *Atmospheric Environment*, 30, 1167-1176.
42. Fisk, WJ, RJ Prill, J Wooley, YC Bonnefous, A J Gadgil, and WJ Riley (1995) New methods of energy efficient radon mitigation, *Health Physics*, 68, 689-698.

OTHER PUBLICATIONS

1. M MacLeod, WJ Riley, and TE McKone, 2005, Modeling Transport and Deposition of Level 1 Substances to the Great Lakes, United States Environmental Protection Agency, Great Lakes National Program Office, 77 West Jackson Blvd (G-17J), Chicago, IL 60604-3590 (LBNL-56801).
2. Noone, DC, CJ Still, and WJ Riley, 2002: A global biophysical model of ^{18}O in terrestrial water and CO_2 fluxes. Research Activities in Atmospheric and Oceanic Modelling, Report No. 32, World Meteorological Organization, 4.19-4.20
3. TL Thatcher, TE McKone, WJ Fisk, MD Sohn, WW Delp, WJ Riley, RG Sextro (2002) Factors affecting the concentration of outdoor particles indoors (COPI): Identification of data needs and existing data, Lawrence Berkeley National Laboratory, Berkeley, CA. (LBNL-49321)
4. Matson, PA and WJ Riley (1997 and 1998) Nitrogen trace-gas emissions from soil: Testing and development of process models for agricultural regions, report to the Kearney Foundation of Soil Science, University of California, Berkeley, CA.
5. Riley, WJ (1996) Wind-induced contaminant transport in near-surface soils with application to radon entry into buildings, Ph.D. dissertation, Lawrence Berkeley National Laboratory, Berkeley, CA. (LBNL-39000)

CONFERENCES & OTHER PRESENTATIONS

1. L.M. Kueppers, Z. Subin, J. Jin, W. Riley, D. Christianson, and M. Torn. 2009. Feedbacks between climate change and plant distribution: Some initial model results. National Center for Ecological Analysis and Synthesis, Santa Barbara, California.
2. Riley WJ (2009) Using Radiocarbon Measurements and Modeling to Constrain CA's Fossil-Fuel CO_2 Emissions and Transport, invited presentation for the Berkeley Atmospheric Sciences Center, April 28, University of California, Berkeley.
3. Riley WJ and ZM Subin. 2009. CH_4 Biogeochemistry in CLM, *Land Model Working Group, NCAR*, March 30 – May 1, Boulder, Colorado.
4. Subin, ZM and WJ Riley. 2009. Thermokarst Lake Dynamics in CLM, *Land Model Working Group, NCAR*, March 30 – May 1, Boulder, Colorado.
5. Subin ZM, J Jin, LM Kueppers, WJ Riley, DS Christianson and MS Torn, 2009. Coupling WRF3 and CLM3.5 for Regional Climate Simulation and Understanding Interactions between Land Cover and the Atmosphere. *WRF Users Workshop, NCAR*, June 23-26, Boulder, Colorado.
6. Gu C, F Maggi, WJ Riley, T Xu, C Oldenburg, N Miller (2008) A Coupled Land Surface-Subsurface Biogeochemical Model for Aqueous and Gaseous Nitrogen Losses, *American Geophysical Union*, December 10–14, San Francisco, CA.
7. Maggi F, WJ Riley (2008) Modeling Non-Steady Isotopic Effects Caused by Biological Kinetic Transient Complexation During Denitrification in Soils, *American Geophysical Union*, December 10–14, San Francisco, CA.

8. Subin, ZM, J Jin, LM Kueppers, WJ Riley, DM Svehla, MS Torn (2008) Ecosystem Feedbacks to Climate Change in California: Integrated Climate Forcing from Vegetation Redistribution, Using a New Regional Climate Model Configuration, *American Geophysical Union*, December 10–14, San Francisco, CA.
9. Riley WJ, IN Williams, MS Torn, SC Biraud, ML Fischer, JA Berry (2008) Bottom-Up and Equilibrium Top-Down Estimates of Regional Ecosystem Carbon Exchange in the Southern Great Plains, *American Geophysical Union*, December 10–14, San Francisco, CA.
10. Gaudinski JB, WJ Riley, MS Torn, TE Dawson, SE Trumbore, JD Joslin, H Majdi, PJ Hanson, C Swanston (2008) Carbon cycling in fine roots of several mature forests: results using either locally-derived or bomb-derived radiocarbon enrichment, C, *American Geophysical Union*, December 10–14, San Francisco, CA.
11. A. Knohl, K.P. Tu, V. Boukili, P.D. Brooks, S. Mambelli, W.J. Riley, T.E. Dawson, and the MIBA-US site participants MIBA-US (2007) Temporal and Spatial Variation of Water Isotopes in Terrestrial Ecosystems Across the United States, *American Geophysical Union*, December 10–14, San Francisco, CA.
12. W.J. Riley, F. Maggi, C. Gu (2007) Mechanistic Representation of the N Isotope Composition of Pools and Fluxes in a Coupled Soil and Plant System: Model Development, Testing, and Application, *American Geophysical Union*, December 10–14, San Francisco, CA.
13. C. Zhao, M.L. Fischer, W.J. Riley (2007) Predicting Atmospheric Methane Signals from Regional Scale Emissions in California: Toward Inverse Model Analysis, *American Geophysical Union*, December 10–14, San Francisco, CA.
14. SC Biraud, M.S. Torn, W.J. Riley, M.L. Fischer, D. Billesbach, J.A. Berry, A. Hirsch, M. Lowenstein, J. Lopez, R. Avissar, (2007) Regional carbon fluxes and atmospheric carbon dynamics in the Southern Great Plains during the 2007 CLASIC intensive, *American Geophysical Union*, December 10–14, San Francisco, CA.
15. M.S. Torn, W.J. Riley, S.C. Biraud, M.L. Fischer, D. Billesbach, J.A. Berry (2007) Regional Ecosystem Carbon Exchange in the Southern Great Plains: Measurements, Modeling, and Scaling, *American Geophysical Union*, December 10–14, San Francisco, CA.
16. F. Maggi, C. Gu., W.J. Riley, C.M. Oldenburg (2007) Nitrogen Cycle Modeling: a Mechanistic Estimate of N-losses From Agricultural Fields Over the Seasonal Time Period, *American Geophysical Union*, December 10–14, San Francisco, CA.
17. C. Gu, F. Maggi, W.J. Riley, C.M. Oldenburg (2007) Lime and soil moisture effects on nitrogen loss following application of fertilizers, *American Geophysical Union*, December 10–14, San Francisco, CA.
18. W.J. Riley, D. Hsueh, J.T. Randerson, M.L. Fischer, J. Hatch, D. Pataki, M. Goulden (2007) Measuring and modeling atmospheric fossil CO₂, *Ameriflux Annual Meeting*, October, Boulder, CO.
19. C. Zhao, W.J. Riley, A.I. Hirsch, P. Tans, M.L. Fischer (2007) Characterizing atmospheric CH₄ concentrations in California: a CALGEM Project, *Berkeley Atmospheric Sciences Conference*, October 4–5, Berkeley, CA.
20. M.L. Fischer, W.J. Riley, A.I. Hirsch, and P. Tans (2007) A California Greenhouse Gas Emission Measurement Project (CALGEM), *CEC Fourth Annual Climate Change Conference*, September 10–13, Sacramento, CA.

21. W.J. Riley, D.Y. Hsueh, J.T. Randerson, M.L. Fischer, J.G. Hatch, D.E. Pataki (2007) Where do Fossil Fuel Carbon Dioxide Emissions from the Western U.S. Go? An Analysis Based on an Atmospheric Model Validated Using Radiocarbon Observations (A Component of NACP-W), *U.S. North American Carbon Program Investigators Meeting*, January 22-24, Boulder, CO.
22. M.L. Fischer, W.J. Riley, A.I. Hirsch, and P. Tans (2007) A California Greenhouse Gas Emission Measurement Project (CALGEM), *U.S. North American Carbon Program Investigators Meeting*, January 22-24, Boulder, CO.
23. J.A. Berry, W.J. Riley, S.C. Biraud, M.L. Fischer, M.S. Torn (2007) Spatially Distributed CO₂, Sensible, and Latent Heat Fluxes Over the Southern Great Plains, *ARM Science Team Meeting*, March 27 - 31, Monterrey, CA.
24. WJ Riley, JA Berry, SC Biraud, ML Fischer, MS Torn (2007) Spatially distributed CO₂, sensible, and latent heat fluxes over the Southern Great Plains, *ARM Science Team Meeting*, March 27 - 31, Monterrey, CA.
25. LR Welp, JWC White, JT Randerson, PP Tans, CJ Still, B Vaughn, DC Noone, N Buenning, WJ Riley (2006) A decreasing seasonal cycle amplitude of $\delta^{18}\text{O}\text{-CO}_2$ as a metric of high latitude temperature increases, *American Geophysical Union*, December 5-9, San Francisco, CA.
26. N Buenning, DC Noone, WJ Riley, CJ Still, JT Randerson, L Welp, JWC White, B Vaughn, J Miller, P Tans (2006) Modeling inter-annual variability of $\delta^{18}\text{O}$ value of atmospheric CO₂ and its dependence on humidity and isotope hydrology, *American Geophysical Union*, December 5-9, San Francisco, CA.
27. CJ Still, DC Noone, N Buenning, JT Randerson, L Welp, JWC White, B Vaughn, WJ Riley (2006) What controls the global value of Oxygen-18 in atmospheric CO₂? *American Geophysical Union*, December 5-9, San Francisco, CA.
28. JA Berry, JN Arinibar, WJ Riley, BR Helliker, JR Ehleringer (2006) Combining meteorology, eddy fluxes, isotope measurements, and modeling to understand environmental controls of carbon isotope discrimination at the canopy and regional scale, *American Geophysical Union*, December 5-9, San Francisco, CA.
29. IN Williams, WJ Riley, JA Berry, MS Torn, ML Fischer (2006) Observed and theoretical seasonal and diurnal cycles of regional surface CO₂ flux over the Southern Great Plains, *American Geophysical Union*, December 5-9, San Francisco, CA.
30. MS Torn, ML Fischer, WJ Riley, TJ Jackson, R Avissar, SC Biraud, DP Billesbach, C Sweeney, PP Tans, JA Berry (2006) Regional carbon fluxes and atmospheric carbon dynamics in the Southern Great Plains during the 2007 mid-continent intensive of NACP, *American Geophysical Union*, December 5-9, San Francisco, CA.
31. ML Goulden, Y Jin, JT Randerson, S Trumbore, D Hsueh, A Fellows, R Anderson, A McMillan, D Roberts, WJ Riley, P Dennison (2006) Mechanisms controlling annual, interannual, and decadal changes in California's carbon budget, *American Geophysical Union*, December 5-9, San Francisco, CA.
32. DY Hsueh, WJ Riley, JT Randerson, ML Fischer, DE Pataki, ML Goulden (2006) Using radiocarbon measurements of annual plants to determine the flow of fossil fuel CO₂ in California, BIOGEOMON 2006, *5th International Symposium on Ecosystem Behavior*, June 25-30, 2006, University of California - Santa Cruz, Santa Cruz, CA.

33. IN Williams, WJ Riley, JA Berry, MS Torn, and ML Fischer (2006) Regional Scale Surface CO₂ Exchange Estimates Using a Boundary Layer Budget Method over the Southern Great Plains, *Annual ARM meeting*, March 27 - 31, Albuquerque, NM.
34. WJ Riley, JA Berry, SC Biraud, ML Fischer, MS Torn (2006) Spatially Distributed CO₂, Sensible, and Latent Heat Fluxes Over the Southern Great Plains, Presentation at the *Annual ARM meeting*, March 27 - 31, Albuquerque, NM.
35. E.R. Smith, M. MacLeod, W.J. Riley, T.G. Nettesheim, and T.E. McKone (2006) Modeling Transport and Deposition of Level 1 Substances to the Great Lakes, *IAGLR conference on Great Lakes*, May 22-26, University of Windsor, Windsor, Ontario, Canada.
36. WJ Riley (2005) Estimating Surface CO₂ and Energy Fluxes with Top-Down and Bottom-Up Approaches Invited talk, *Environmental Engineering Seminar*, October 14, University of California, Berkeley, CA.
37. WJ Riley, JT Randerson, ML Fischer, D Hsueh, J Hatch (2005) Relating the $\Delta^{14}\text{C}$ Value of Annual Grasses to Spatially and Temporally Distributed Fossil Fuel Emissions in California, *California Energy Commission*, September 14 – 16, Sacramento, CA.
38. SC Biraud, WJ Riley, ML Fischer, MS Torn, JA Berry (2005) Spatially Distributed CO₂, Sensible, and Latent Heat Fluxes over the Southern Great Plains, *International Conference on CO₂ (ICDC)*, September 25 - 30, Boulder, CO.
39. N Buenning, DC Noone, CJ Still, WJ Riley, JT Randerson, L Welp (2005) The expression of global dimming on $\delta^{18}\text{O}$ of atmospheric CO₂, *International Conference on CO₂ (ICDC)*, September 25 - 30, Boulder, CO.
40. M. Cuntz, WJ Riley, GD Farquhar (2005) Impact of soil-surface fluxes and night-time leaf respiration on the global composition of ^{18}O in atmospheric CO₂, *International Conference on CO₂ (ICDC)*, September 25 - 30, Boulder, CO.
41. WJ Riley, CJ Still, R Vachon, J Welker, J White, D Noone, SC Biraud, JA Berry (2005) Mechanisms Impacting Inter-annual Variations in Regional C¹⁸OO Isofluxes: Model Estimates with Regional Meteorological and Isotope Forcing Data, *International Conference on CO₂ (ICDC)*, September 25 - 30, Boulder, CO.
42. MS Torn, ML Fischer, SC Biraud, WJ Riley, L Jin, JA Berry (2005) Down and Dirty: Using a continental, not-so-tall tower to study trends in local, regional, and global atmospheric CO₂ concentrations, *International Conference on CO₂ (ICDC)*, September 25 - 30, Boulder, CO.
43. CJ Still, WJ Riley, SC Biraud, D. Noone, N. Buenning, J Welker, R Vachon, J White, JT Randerson, L Welp, JA Berry, GD Farquhar (2005) The impact of clouds on ecosystem CO¹⁸O isofluxes in the Great Plains, *International Conference on CO₂ (ICDC)*, September 25 - 30, Boulder, CO.
44. A Sellers, K Yoshimura, M Fischer, I Aleinov, P Irannejad, K McGuffie, WJ Riley, G A Schmidt, K Sturm (2005) Modeling Stable Water Isotopes Exchanges Between the Land and the Atmosphere, *American Geophysical Union*, December 5-9, San Francisco, CA.
45. CJ Still, WJ Riley, SC Biraud, DC Noone, JA Berry (2005) The Impact of Clouds on Ecosystem-Atmosphere C¹⁸OO Exchanges in the U.S. Great Plains, *American Geophysical Union*, December 5-9, San Francisco, CA.

46. WJ Riley, D Hsueh, JT Randerson, ML Fischer, J Hatch, D Pataki (2005) Where do Fossil Fuel Carbon Dioxide Emissions from the Western U.S. Go? An Analysis Based on an Atmospheric Model Validated Using Radiocarbon Observations (A Component of NACP-W) *American Geophysical Union*, December 5-9, San Francisco, CA.
47. IN Williams, W J Riley, J A Berry, M S Torn, M L Fischer (2005) Regional-Scale Surface CO₂ Exchange Estimates Using a Boundary Layer Budget Method Over the Southern Great Plains, *American Geophysical Union*, December 5-9, San Francisco, CA.
48. S.C. Biraud, W.J. Riley, M.L. Fischer, M.S. Torn, and H.S Cooley (2004) Estimating Regional CO₂ Exchange over the Southern Great Plains, *American Geophysical Union*, December 12-18, San Francisco, CA.
49. W.J. Riley and J.T. Randerson (2004) The Influence of Terrestrial Ecosystems and Topography on Coastal CO₂ Measurements: A Case Study at Trinidad Head, CA, *American Geophysical Union*, December 12-18, San Francisco, CA.
50. S.R. Tonse, M.L. Fischer, W.J. Riley (2004) Design of an Atmospheric Observing Strategy for California's Carbon Cycle, *American Geophysical Union*, December 12-18, San Francisco, CA.
51. J.N. Aranibar, J.A. Berry, W.J. Riley, D.E. Pataki, B.E. Law, D. Bowling, and J. R. Ehleringer (2004) Modeling Carbon and Water Vapor Fluxes and Carbon Isotope Discrimination at the Canopy Scale in a Semi-arid Pine Forest, *American Geophysical Union*, December 12-18, San Francisco, CA.
52. Gaudinski JB, Riley WJ, Torn MS, Joslin JD (2003) Refinement of Isotopically Derived Fine Root Lifespans Using A Locally Released Radiocarbon Label in Oak Ridge, TN. Eos Trans. AGU, 84(46) Fall Meet. Suppl., *American Geophysical Union*, Abstract B32D-03.
53. W.J. Riley and C.J. Still (2003) Constraints on the use of ¹⁸O in CO₂ as a tracer to partition gross carbon fluxes *American Geophysical Union*, December 10-14, San Francisco, CA.
54. M.S. Torn, W.J. Riley, M.L. Fischer, and J.A. Berry (2003) Characterizing Diurnal CO₂ Cycles in the Continental Boundary Layer Using Precise Concentration Measurements and a Simple Numerical Model, *American Geophysical Union*, December 10-14, San Francisco, CA.
55. H. Cooley, W.J. Riley, and M.S. Torn (2003) Agricultural practices and regional climate interactions in a coupled regional climate model, *American Geophysical Union*, December 10-14, San Francisco, CA.
56. W.J. Riley (2003) Impact of the $\delta^{18}\text{O}$ value of near-surface soil water on the $\delta^{18}\text{O}$ value of the soil-surface CO₂ flux, invited SIBAE/BASIN Conference, Orvieto, Italy.
57. W.J. Riley (2003) Water isotope modeling: Land surface and plant exchanges, invited NCAR working group, Boulder, CO.
58. Torn, M.S., M.L. Fischer, W.J. Riley, I. Pesenson, J.A. Berry, L. Giles, and D.P. Billesbach (2003) Carbon Cycling in the Southern Great Plains: The ARM/LBNL Carbon Project. The North American Carbon Program PI Meeting, Washington DC. (LBNL-52811)
59. Cooley, H.S., W.J. Riley, and M.S. Torn (2003) Effect of harvest on regional climate and soil moisture and temperature, in Chapman Conference on Ecosystem Interactions with Land Use Change, Santa Fe, NM. (LBNL-53039)

60. Cooley, H.S., W.J. Riley, and M.S. Torn (2003) Interactions Between Land Cover Change and Climate in a Coupled Regional Climate Model, in 88th Ecological Society of America Annual Meeting, Savannah, GA. (LBNL-53055)
61. Riley, W.J. H.S. Cooley, Y. He, and M.S. Torn, Coupling MM5 with ISOLSM: Development, testing, and application (2003) PSU/NCAR Mesoscale Modeling System Users' Workshop, Boulder, CO, June 10 - 11. (LBNL-53018)
62. Fischer, M.L., D.P. Billesbach, W.J. Riley, J.A. Berry, and M.S. Torn (2003) Spatial Heterogeneity in Ecosystem-Atmosphere Carbon Exchange Near the ARM Central Facility During Spring 2003, *2003 ARM Science Team Meeting*, Denver, CO. (LBNL-52810)
63. Riley WJ, Hubal EAC, and McKone TE (2002) Linking dermal modeling and loading data to predict long-term doses from intermittent dermal contact, *ISEA conference*, Epidemiology, **13**: 230.
64. Torn, M.S., M.L. Fischer, W.J. Riley (2002) From crops to boundary layer and back: The ARM/LBNL Carbon Project in the Southern Great Plains, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-51834)
65. Riley, W.J., M.S. Torn, M.L. Fischer, C.J. Still, and J.A. Berry (2002) Impacts of drought stress on C¹⁸OO ecosystem fluxes in an agricultural field: Measurements and modeling, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-51785)
66. Fischer, M.L., D.P. Billesbach, W.J. Riley, J.A. Berry, and M.S. Torn (2002) Spatial heterogeneity and inter-annual variation in ecosystem-atmosphere CO₂/H₂O exchange in the Southern Great Plains, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-52812)
67. Berry, JA, B Helliker, P Bakwin, D Billesbach, J Birks, K Davis, S Denning, J Ehleringer, M Fisher, M Jensen, J Miller, W Riley, K Schulz, M Torn, (2003) Daily CO₂ and isotopic gradients in the lower atmosphere, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-53037)
68. Marshall, J.D., W.J. Riley, T.E. McKone, and W.W. Nazaroff (2002) Population, proximity, and persistence: Incorporating exposure into life-cycle assessment, *International Society for Exposure Analysis*, August 11-15, Vancouver, BC. (LBNL-53038)
69. Riley, W.J., E.A. Cohen Hubal, and T.E. McKone (2002) Linking dermal modeling and loading data to predict long-term doses from intermittent dermal contact, *International Society for Exposure Analysis*, August 11-15, Vancouver, BC. (LBNL-53017)
70. McKone, T.E., T.L. Thatcher, W.J. Fisk, R.G. Sextro, M.D. Sohn, W.W. Delp, and W.J. Riley. "Factors affecting the concentration of outdoor particles indoors: Existing data and data needs". In Indoor Air 2002 - The 9th International Conference on Indoor Air Quality and Climate; Monterey, CA; June 30 - July 5, 2002. 2002. LBNL-49570
71. Riley W.J., C.J. Still, M.S. Torn, and J.A. Berry (2002) Mechanistic modeling of oxygen isotopic fluxes from differing ecosystem types: Sensitivity analysis of biological and biophysical factors controlling net ecosystem H₂¹⁸O and C¹⁸OO exchanges, *Stable Isotopes and Biosphere-Atmosphere Interactions*, May 12-14, Alberta, Canada.
72. Fischer, M.L., D.P. Billesbach, W.J. Riley, J.A. Berry, and M.S. Torn (2002) Mid-summer Fluxes of Carbon, Water and Energy in Agricultural Plots Near the SGP Central Facility, *ARM Science Team Meeting*, April 7-9, St Petersburg, FL.

73. Torn, M.S., J. A. Berry, W. J. Riley, M.L. Fischer, D. Billesbach, B. Helliker, L. Giles (2002) From Crops to Boundary Layer and Back Down Again: The ARM/LBNL Carbon Project in the Southern Great Plains. *ARM Science Team Meeting*, April 7-9, St. Petersburg, FL.
74. Riley, W.J., D.C. Noone, M.S. Torn, J.A. Berry, and C.J. Still (2001) Integrating and testing a mechanistic model of H₂¹⁸O and C¹⁸OO ecosystem fluxes in a coupled land surface and global climate model, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-50330)
75. Fischer, M.L., D.P. Billesbach, W.J. Riley, J.A. Berry, and M.S. Torn (2001) Measured midsummer spatial heterogeneity in ecosystem-atmosphere CO₂ and H₂O exchange for selected crop systems of the Southern Great Plains, *American Geophysical Union*, December 10-14, San Francisco, CA.
76. Noone, D.C., C.J. Still, W.J. Riley (2001) Influence of land use change on the ¹⁸O in atmospheric CO₂: a comparison of pre-industrial, modern and future scenarios, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-50310)
77. Noone, D.C., W.J. Riley, C.J. Still, and J.T. Randerson (2001) Diagnosing impacts of changes in the biosphere by modeling ¹⁸O in atmospheric CO₂ with a general circulation model, *The 6th International CO₂ Conference*, July 6-10, Sendai, JP. (LBNL-50311)
78. M.L. Fischer, J.A. Barry, D.P. Billesbach, W.J. Riley, and M.S. Torn (2001) Carbon Cycle Measurements DOE- ARM Southern Great Plains Site, *Ameriflux Meeting*, Argon, IL.
79. Venterea, R.T., W.J. Riley, and D.E. Rolston (2001) Mechanistic modeling of nitrification, denitrification, soil hydrology, and N losses in an agricultural system, *Ecological Society of America, 86th Annual Meeting*, August 5-10, Madison, WI. (LBNL-50274).
80. Riley, W.J., T.E. McKone, E.J. Furtaw, and C.C. Dary (2001) Modeling absorbed doses from intermittent dermal contact, *International Society of Exposure Analysis*, July, Charleston, SC.
81. Riley, W.J., C.J. Still, B.R. Helliker, M. Ribas-Carbo, G. Burba, S. Verma, M.S. Torn, and J.A. Berry (2001) Simulating δ¹⁸O of Water and Carbon Dioxide at a Tallgrass Prairie in Oklahoma, *Ecological Society of America, 86th Annual Meeting*, August 5-10, Madison, WI. (LBNL-50324).
82. Riley, W.J., C.J. Still, B.R. Helliker, M.S. Torn, and J.A. Berry (2001) Modeling the ¹⁸O composition of CO₂ as a tracer of soil and plant carbon fluxes: Integration into a land surface model for coupling with GCMs, *Global Change Open Science Conference*, July 10-13, Amsterdam, the Netherlands. (LBNL-50329)
83. McKone, T.E., W.J. Riley, E. Cohen-Hubal, E. Furtaw Jr, and C. Dary (2001) Dermal uptake of pesticides during exposure events with intermittent surface contact: Malathion case study *Annual Meeting of the Society of Toxicology*, March 25-29, San Francisco, CA. LBNL-50303
84. Torn, M.S., J.A. Berry, M.L. Fischer, D. Billesbach, W.J. Riley, and W. Zhao (2001) Carbon monitoring at the ARM Southern Great Plains site, 2001 *ARM Program Science Team Meeting*, Atlanta, March 19-23, 2001. (LBNL-50342)
85. Riley, W.J., T.E. McKone, and W.W. Nazaroff (2000) Estimating indoor exposures to particles of outdoor origin: Development of a modeling framework, *International Society of Exposure Analysis*, October 24-27, Monterey, CA. (LBNL-50331)

86. Asner, G.P., J.C. Neff, W.J. Riley, R. Jackson, and P.A. Matson, (2000) Dissolved Organic Carbon and Nutrient Modeling in Terrestrial Ecosystems, *Ecological Society of America, 85th Annual Meeting*, August 6–10, Snowbird, CO. (LBNL-50316)
87. Asner, G.P., J.C. Neff, W.J. Riley, R. Jackson, P.A. Matson, and C.B. Field (1999) Global estimates of dissolved organic carbon fluxes and storage in terrestrial ecosystems, *American Geophysical Union, 1999 Fall Meeting*, December 6 - 10, San Francisco, CA.
88. Riley, W.J., I. Ortiz-Monasterio, and P.A. Matson (1999) Applying a mechanistic model of nitrogen cycling (NLOSS) to reduce N losses in an intensive agricultural system, *The Ecological Society of America, 84th Annual Meeting*, August 8-12, Spokane, WA.
89. Riley, W.J. and P.A. Matson (1998) A mechanistic model (NLOSS) of biogenic nitrogen trace-gas effluxes from soil during nitrification and denitrification, *American Geophysical Union (Special Session on Trace-Gas Emissions), 1998 Fall Meeting*, December 6 - 10, San Francisco, CA.
90. Riley, W.J., I. Ortiz-Monasterio, and P.A. Matson (1998) Nitrogen leaching in an irrigated wheat system in northern Mexico, *The Ecological Society of America, 83rd Annual Meeting*, August 2-6, Baltimore, MD.
91. Riley, W.J. and P.A. Matson (1997) A mechanistic model of soil denitrification including microbial dynamics, trace-gas transport, and soil emission, *The Ecological Society of America, 82nd Annual Meeting*, August 7-10, Albuquerque, NM.
92. Riley, W.J. and P.A. Matson (1997) Predicting nitrogen gas losses from agricultural soils, *NATO ASI: Soils and Global Climate Change*, June 16-27, Toulouse, France.
93. Riley, WJ (1997) Nitrogen trace-gas emissions from agricultural soils, *Kearney Foundation of Soil Science Symposium on California Soil Quality*, March 25, U.C. Berkeley, CA.
94. Riley, W.J., A.J. Gadgil, and W.W. Nazaroff (1995) Estimating the impact on radon entry rate of steady wind-induced ground pressures: Predictions with wind-tunnel experiments and a k- ϵ turbulence model of wind flow, *International Symposium on the Natural Radiation Environment VI*, June 5-9, Montreal, Quebec.
95. Riley, W.J., W.J. Fisk, and A.J. Gadgil (1995) The potential energy use, energy cost, and CO₂ emissions associated with radon mitigation by sub-slab ventilation in the USA: A brief summary, *International Symposium on the Natural Radiation Environment VI*, June 5-9, Montreal, Quebec.
96. Bonnefous, Y.C., A.J. Gadgil, and W.J. Riley (1994) A numerical tool for predicting gas flow at the soil/building interface, *Proceedings of European Performance Energetique et Qualite des Ambiances Dans le batiment*, November, Lyon, France.
97. Bonnefous, Y.C., A.J. Gadgil, K.L. Revzan, W.J. Fisk, and W.J. Riley (1993) Impacts of a sub-slab aggregate layer and a sub-aggregate membrane on radon entry rate: a numerical study, *Proceedings of Indoor Air '93, The 6th International Conference on Indoor Air Quality and Climate*, 4, 569-574, July 4-8, Helsinki, Finland.
98. Miller, J.H.,..., Riley, W.J., et al. (1989) Synthesis and characterization of BiCaSrCuO and BiSnCaSrCuO superconductor ceramics, *Proceedings of 1988 High Temperature Superconductivity, the First Two Years*, Metzger, R M (Ed), 235-240.
99. Miller, J.H., B. Liu, W.J. Riley, et al. (1988) Temperature-dependent conductivity of oxygen-depleted YBCO ceramics, *Proceedings of 1987 High-Temperature Superconducting Materials, Preparations, Properties, and Processing*, Hatfield WE, Miller JH (Eds.), 243-249.

HONORS AND AWARDS

American Western Universities Graduate Student Fellowship, 1996.
Air and Waste Management Association Academic Scholarship, 1995.
Sigma Pi Sigma - National Physics Honor Society, 1987.
Graduated Cum Laude from Rensselaer Polytechnic Institute, 1984.
Tau Beta Pi - National Engineering Honor Society, 1981.
Sigma Gamma Tau - National Aerospace Engineering Honor Society, 1981.

RECENT GRANTS FUNDED

1. Co-I: NASA, 2005-2008.
2. Co-I: LDRD for Berkeley Water Center, 2006-2007.
3. PI: California Energy Commission, 2005-2006.
4. Co-I: California Energy Commission, 2003-2004.
5. Co-I: U.S. Environmental Protection Agency, 2004-2005.
6. PI: Laboratory Directed Research & Development Program, 2001-2003.
7. Co-I: National Oceanographic and Atmospheric Administration, 2002-2005.
8. Co-I: National Science Foundation, 2001-2004.
9. Co-I: Department of Energy, 2002-2005.
10. Co-I: California Energy Commission, 2003.